

DESCRIPTION OF PANTOSTEUS SANTA-ANÆ, A NEW SPECIES OF FISH FROM THE SANTA ANA RIVER, CALIFORNIA.

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A small collection of fishes taken from the Santa Ana River near Riverside, California, by Mr. Edmund Heller, in May, 1897, contains a *Pantosteus* which differs from any of the known forms. It is here described as *Pantosteus santa-ana*, new species.

Pantosteus santa-ana is closely related to *P. delphinus* of the Colorado basin, a form with a thick skull and greatly restricted fontanelle, which early becomes obliterated. It differs from it in having larger scales. It seems to have no affinities with *P. arizona* or *P. clarki*, the other species indigenous to the Colorado basin. In external characters it resembles *P. generosus* of the Salt Lake basin. It has a much thicker skull, the fontanelle being closed, even in very small individuals, while in *P. generosus* it is evident in examples measuring 200 millimeters or more in length. It differs widely from the *Pantosteus* of the San Joaquin basin and also from the species of western Nevada and adjacent parts of California.

PANTOSTEUS SANTA-ANÆ, new species.

Head $4\frac{1}{2}$ in length to base of caudal; depth $4\frac{1}{4}$; depth caudal peduncle 10; snout $1\frac{9}{10}$ in head; eye $6\frac{1}{2}$; width interorbital space $2\frac{7}{8}$. D. 11; A. 7; scales in lateral series 79; before dorsal 32.

Body robust, the head long; interorbital space convex. Skull very thick, the fontanelle completely closed even in individuals not more than 45 mm. long. Width of mouth contained 4 times in length of head; width, including lips, equal to length of snout; lips with narrow, smooth shields within; papillæ irregularly arranged, about 6 rows on upper lip, the inner ones large, the outer ones very small; lower lip not deeply cleft, there being 5 rows of papillæ between cleft and inner margin.

Origin of dorsal nearer tip of snout than base of caudal (end of last vertebra) by a distance equal to diameter of orbit; height of longest rays $1\frac{1}{2}$ in head; last 2 rays closely apposed, completely united in some cases. Height of anal $1\frac{2}{3}$ in head. Caudal deeply concave, length $1\frac{2}{3}$ in head. Pectorals broad, rather pointed posteriorly, $1\frac{2}{3}$ in head. Ventrals rounded, $1\frac{2}{3}$ in head; origin of fin below seventh dorsal ray.

Lateral line straight except for a slight upward curve at its origin. Scales small anteriorly, growing gradually larger posteriorly, minute on breast and abdomen; 15 in a series, counting upward and forward from lateral line to a point midway between occiput and dorsal, about 12 between lateral line and base of dorsal, 13 between lateral line and insertion of ventral.

Color in spirits dusky above, lighter below; each longitudinal row of scales with a conspicuous light stripe which is equal to about one-third of a scale in width.

Described from the type, Cat. No. 61675, U.S.N.M., a specimen 153 mm. long, from near Riverside, California. Collected by Edmund Heller. Many other examples, among which are cotypes No. 20660, Stanford University collection, show but little variation from the type. The following measurements of 10 specimens are expressed in hundredths of the length from the tip of the snout to the end of the last caudal vertebra:

Measurements.

Length of body (in millimeters).....	131	136	147	103	94	96	105	100	80	89
Length head.....	.235	.23	.225	.23	.24	.24	.23	.23	.27	.25
Depth body.....	.23	.22	.22	.21	.23	.22	.22	.21	.22	.21
Depth caudal peduncle.....	.10	.095	.095	.10	.105	.105	.10	.10	.10	.09
Length caudal peduncle.....	.13	.15	.13	.125	.13	.15	.125	.13	.15	.14
Length snout.....	.125	.11	.12	.12	.126	.12	.12	.12	.13	.13
Diameter eye.....	.04	.045	.04	.04	.04	.04	.04	.04	.045	.055
Interorbital width.....	.09	.09	.095	.09	.09	.09	.09	.09	.09	.09
Depth head.....	.155	.16	.15	.15	.16	.16	.16	.165	.18	.155
Snout to occiput.....	.20	.19	.19	.205	.22	.22	.20	.21	.23	.23
Snout to dorsal.....	.50	.50	.48	.49	.50	.51	.51	.50	.50	.50
Snout to ventral.....	.57	.54	.55	.55	.56	.57	.56	.59	.56	.59
Length base of dorsal.....	.135	.15	.14	.125	.14	.13	.14	.14	.14	.14
Length base of anal.....	.08	.10	.08	.08	.08	.075	.08	.09	.07	.10
Height dorsal.....	.15	.18	.16	.155	.18	.18	.16	.16	.18	.18
Height anal.....	.17	.18	.17	.18	.17	.16	.16	.16	.19	.21
Length pectoral.....	.18	.19	.17	.18	.20	.18	.19	.18	.22	.20
Length ventral.....	.15	.18	.14	.14	.14	.13	.15	.14	.15	.20
Length caudal.....	.20	.21	.19	.21	.20	.20	.20	.20	.24	.19
Dorsal rays.....	11	11	11	11	11	10	11	11	10	11
Scales lateral line.....	79	78	76	78	80	74	78	75	79	76
Scales above lateral line.....	15	15	15	15	15	15	15	14	14	15
Scales below lateral line.....	13	13	12	13	12	13	12	13	13	13
Scales before dorsal.....	32	31	33	29	29	28	21	30	28	27